



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/164,580	10/01/1998	RICHARD W. ARNOLD	TI-22561	6836

23494 7590 02/25/2002

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER

MITCHELL, JAMES M

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 02/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/164,580	ARNOLD ET AL.
	Examiner James Mitchell	Art Unit 2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 06 November 2001.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-4,9-16 and 22-31 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-4,9-16 and 22-31 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the declaration filed November 15, 2001.

Declaration

2. The applicant has tried to provoke an interference by providing a declaration under 37 CFR 1.131, but it can not disqualify a 102(e) reference when the claims are directed to the same invention. The record clearly shows that applicant's invention is directed to the same art. Pursuant to 37 CFR 1.608 (b) When the effective filing date of an application is more than three months after the effective filing date of a patent, the applicant, before an interference will be declared, shall file evidence which may consist of patents or printed publications, other documents, and one or more affidavits which demonstrate that applicant is prima facie entitled to a judgment relative to the patentee and an explanation stating with particularity the basis upon which the applicant is prima facie entitled to the judgment.

Interference

3. Claims 22-31 of this application has been copied from U.S. Patent No. 6,028,437 for the purpose of an interference.
4. Applicant has failed to specifically apply each limitation or element of each of the copied claim(s) to the disclosure of the application.
5. Applicant is given three months, from the mailing date of this communication to specifically apply each limitation or element of each of the copied claim(s) to the disclosure of the application. See 37 CFR 1.607(a)(5). THE PROVISIONS OF 37 CFR 1.136 DO NOT APPLY TO THE TIME SPECIFIED IN THIS ACTION.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claim 26 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support the specification for wafer fixed to a package.

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

8. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

9. Claims 22-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Potter (U.S 6,028,437). Applicant is referred to Column 5 and 6 in its entirety.

10. Potter discloses an apparatus adaptable for the testing of semiconductor devices comprising a package; and an interconnecting medium ("probe membrane") contained within said package having electrical paths adaptable for coupling to test circuitry,

Art Unit: 2827

wherein said interconnecting medium ("probe membrane head") includes a medium surface, a plurality of standoffs affixed to said medium surface, and a plurality of solid probe tips affixed to said medium surface, said probe tips adaptable for making electrical contact with pads on said semiconductor device, wherein said probe tips are compliant bump probe tips, a package base having an upper surface adapted to receive said interconnecting medium, said medium having a medium lower surface; a elastomeric bonding layer interposed between said medium lower surface and said package base upper surface; and a package lid having a lower surface adapted to receive said semiconductor device, wherein said package lid is positioned above said package base, a die having an upper surface, said upper surface fixed to said package lid lower surface by a bonding layer interposed therebetween, wherein said semiconductor device is a wafer having an upper surface, said upper surface fixed to said package lid lower surface by a bonding layer interposed therebetween.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farnworth in view of Johnson (U.S 6,229,319) and Potter (U.S 6,028,437).

13. Farnworth discloses a package (14) with a cavity (Fig.1), a plurality of terminals (40), a die (12) with bond pads (Fig.7, Item 62), an interconnecting layer (16) with

electrically conductive paths (58,60) of a first and second region wherein said first region is aligned with bond pad of die (Fig. 7A), an interconnection via wirebonds (Fig. 3, Item 44) between said second region and terminals, and in the alternate aligned bumps formed on said second region (Line 56-57, Column 7).

14. Farnworth does not show the interconnect bumps aligned with and in contact with the terminals or a compliant bump with a standoff wherein the standoff's height is less than said bump.

15. However, Johnson utilizes an alignment of bumps and contacts (Fig. 2A).

16. It would have been obvious for one of ordinary skill in the art to align the bumps on the interconnect with the contacts on the peripheral of package in order to form an electrical communication as taught by Johnson (Lines 16-19, Column 4).

17. Further, Potter utilizes a compliant bump, and a standoff with a height less than said bump (Lines 3-5, Column 2).

18. It would have been obvious to one of ordinary skill in the art to modify the test structure of Farnworth and Johnson by incorporating a compliant bump with a standoff of lesser height for improved electrical contact (abstract) and to prevent over deformation of the bump as taught by Potter (Lines 1-2, Column2).

19. Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farnworth in view of Potter (U.S 6,028,437).

20. Farnworth discloses elements recited in paragraph 13 and further a flexible interconnect formed of Silicon (Lines 1-2, Column 3).

21. Farnworth does not show a compliant bump with a standoff wherein the standoff's height is less than said bump.
22. However, Potter utilizes a compliant bump, and a standoff with a height less than said bump (Lines 3-5, Column 2).
23. It would have been obvious to one of ordinary skill in the art to modify the test structure of Farnworth by incorporating a compliant bump with a standoff of lesser height for improved electrical contact (abstract) and to prevent over deformation of the bump as taught by Potter (Lines 1-2, Column2).

Conclusion

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3230 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JMM
jmm
February 22, 2002

DEG
DAVID E. GRAYBILL
PRIMARY EXAMINER